

Equivalent to **CA 2151210 A1**

see Int. Search Report pg 6/7



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



Publication number:

**0 686 412 A2**

12

## EUROPEAN PATENT APPLICATION

21 Application number: **95108085.2**

51 Int. Cl.<sup>8</sup>: **A63C 17/00**

22 Date of filing: **26.05.95**

30 Priority: **08.06.94 IT TV940063**

43 Date of publication of application:  
**13.12.95 Bulletin 95/50**

84 Designated Contracting States:  
**AT CH DE ES FR IT LI**

71 Applicant: **NORDICA S.p.A**  
**Via Montebelluna 5/7**  
**I-31040 Trevignano (Treviso) (IT)**

72 Inventor: **Tonel, Valerio**  
**Via Montepiana 10**  
**I-31030 Biadene,**

(Province of Treviso) (IT)

Inventor: **Gorza, Roberto**

**Via C. Rizzarda 15**

**I-32032 Feltre,**

(Province of Belluno) (IT)

Inventor: **Caeran, Francesco**

**Via S. Gaetano 215**

**I-31044 Montebelluna,**

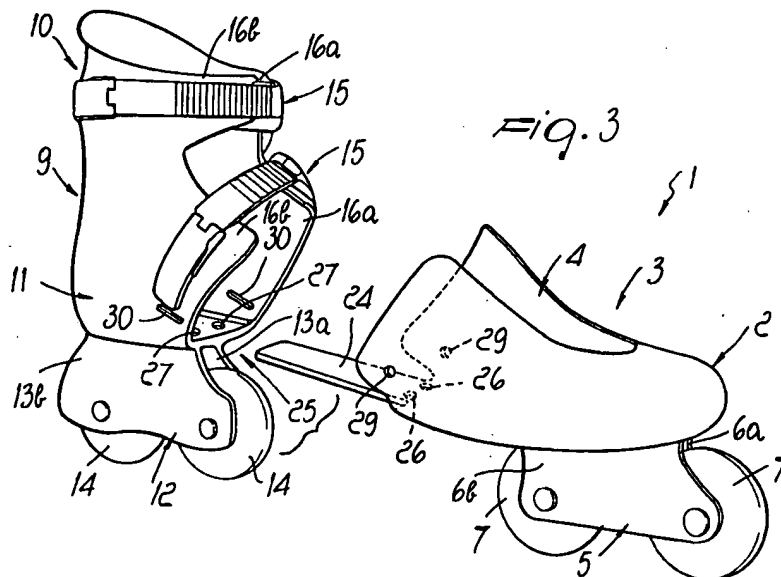
(Prov. of Treviso) (IT)

74 Representative: **Modiano, Guido, Dr.-Ing. et al**  
**Modiano & Associati S.r.l.**  
**Via Meravigli, 16**  
**I-20123 Milano (IT)**

54 **Roller skate with improved fit**

57 Roller skate with improved fit which includes a first front body (2) for supporting and securing the front part of the foot and a second rear body (8) for supporting and securing at least the heel. These bodies are rotatably associated with each other, and

each body is provided with a supporting frame for at least one wheel. The articulation between the first body and the second body allows easier skating in improved comfort conditions.



EP 0 686 412 A2

The present invention relates to a roller skate with improved fit.

Conventional skates are constituted by a shoe associated with a support for a pair of front wheels and a pair of rear wheels.

The rigidity of the shoe support is a drawback for these conventional skates, because during sports practice, and particularly during the pushing action, the user applies the efforts mainly at the sole region below the metatarsal area, with a tendency to articulate the foot.

The rigidity of the shoe support, as well as the possible rigidity of the shoe sole, prevent the achievement of these conditions, since the pushing force must be transmitted so that the sole of the foot is resting fully and so that the forces are transmitted both to the front pair of wheels and to the rear pair of wheels, consequently losing effectiveness in the pushing action.

Skates are also known which are constituted by a shoe that comprises a quarter articulated at a shell. A usually U-shaped frame is associated with the shell and has in-line wheels.

Even this solution has the drawbacks described above, since it limits both the effectiveness of the pushing action and the comfort of the foot, which must be kept rigid at the sole during the various movements required to achieve pushing.

The aim of the present invention is to solve the abovementioned problems, eliminating the drawbacks of the prior art, by providing a roller skate that allows the user to optimally transmit forces during the pushing action and at the same time allows anatomically correct foot movements.

Within the scope of this aim, an important object is to provide a skate that allows to transmit forces during the pushing action selectively only at the front region of the foot.

Another important object is to provide a skate that allows, during the pushing action, to reduce as much as possible friction between the ground and the wheels.

Another important object is to provide a skate that offers optimum fit for the user during sports practice and particularly during the pushing action.

This aim, these objects, and others which will become apparent hereinafter are achieved by a roller skate with improved fit, characterized in that it comprises a first front body for supporting and securing the front part of the foot and a second rear body for supporting and securing at least the heel, said front body being rotatably associated with said rear body.

Advantageously, the first front body and the second rear body accommodate an innerboot.

Further characteristics and advantages of the present invention will become apparent from the following detailed description of two particular but

not exclusive embodiments thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

- 5 figure 1 is a side view of the skate according to the invention during normal skating;
- figure 2 is a view, similar to the preceding one, of the condition assumed by the skate during the pushing action;
- 10 figure 3 is a lateral perspective exploded view of the skate;
- figure 4 is a view, similar to the preceding one, of a skate according to the invention provided with a brake;
- 15 figure 5 is a rear perspective view of the skate of figure 4 during normal skating;
- figure 6 shows the skate of figures 4, 5 during the pushing action.

With reference to the above figures, the reference numeral 1 designates a skate constituted by a first front body 2 forming a shell that surrounds and secures the front region 3 of the foot. The front body 2 is open at the rear and is provided with an upper longitudinal opening 4.

A first substantially U-shaped frame 5 is associated below the first body 2 in the particular embodiment illustrated herein, and two first mutually aligned wheels 7 are rotatably associated between the first wings 6a and 6b of said frame.

The first front body 2 is slidably and rotatably associated with a second rear body 8 that is constituted by a monolithic unit formed by a cuff 9 surrounding the tibial region 10 and the heel region 11.

Said second rear body 8 is open at the front, and a second frame 12 is associated therewith below the heel region 11. Said second frame has a U-shaped cross-section, and second mutually aligned wheels 14 are rotatably associated between its second wings 13a, 13b.

The tibial region 10 and the heel region 11 are secured by means of adapted levers 15 that transversely connect the flaps 16a and 16b of the second rear body 8.

Optionally, as illustrated in figures 4-6, an adapted support for a brake that interacts with the ground when the second body 8 is rotated backwards is associated at the second frame 12.

Said second body, as shown in figure 4, can be advantageously constituted by two elements, such as a quarter 17 articulated to a shell portion 18 to allow a support 19, for a brake 20 that interacts with the ground, to be articulated to the second frame 12, said support 19, however, being articulated to the rear and transversely with respect to the quarter 17 by means of a rod member 21.

Advantageously, the oscillation of the quarter 17 with respect to the shell portion 18 is guided by an adapted first pivot 22 protruding laterally with

respect to the shell portion 18 and acting within an adapted curved first slot 23 that is formed laterally with respect to the quarter 17.

The first body 2 is slidingly associated with the second body 8 by means of an adapted tab 24 protruding to the rear and below the first body 2 along an axis that is approximately central and longitudinal. Said tab 24 is slidingly associated at an adapted seat 25 formed at the heel resting region in the second body 8.

The mutual sliding of said first and second bodies can be locked by means of adapted screws or rivets that affect a first pair of holes 26 formed on the first body 2 proximate to the tab 24 and a second pair of holes 27 formed on the seat 25 of the second body 8.

The first and second bodies are rotatably associated by means of an adapted pair of studs 28, the stem whereof affects a third pair of holes 29 formed laterally and proximate to the open rear end of the first body 2, as well as a pair of second slots 30 formed laterally to the second body 8 proximate to the seat 25.

It is also possible to provide a fourth pair of holes as an alternative to the second slots 30.

In order to allow better comfort for the user, a soft innerboot 31 can be inserted into the first and second bodies.

The use of the skate according to the invention is therefore as follows: once the first body and the second body have been mutually positioned in a stable or sliding manner, the skater can produce the pushing condition so as to apply forces only at the first frame 5 that protrudes below the first front body 2, at the same time articulating the foot during this step, since the foot is assisted by the articulation between said first and second bodies.

In this manner, the user, on one hand, improves force transmission during the pushing action and, on the other hand, allows the foot to perform these movements in an anatomically correct manner, since it is possible to raise the second frame 12 from the ground, at the same time eliminating friction between the second wheels 14 and the ground.

It is thus evident that the invention has achieved the intended aim and objects, a skate having been provided that allows to optimally achieve pushing action during sports practice, furthermore increasing comfort for the user, since the foot performs an anatomically correct movement to achieve the pushing action.

Furthermore, the lifting of the second wheels 14 from the ground during this pushing step allows to reduce friction with the ground, further improving the results that can be achieved.

Furthermore, the presence of the upper longitudinal opening 4 provided in the first body 2 allows,

also by virtue of the corresponding opening formed on the second body 8, to perform the mutual oscillations of the first and second bodies with great comfort for the user, since there are no rigid elements that undergo deformations during oscillation.

The skate according to the invention is of course susceptible of numerous modifications and variations within the scope of the same inventive concept.

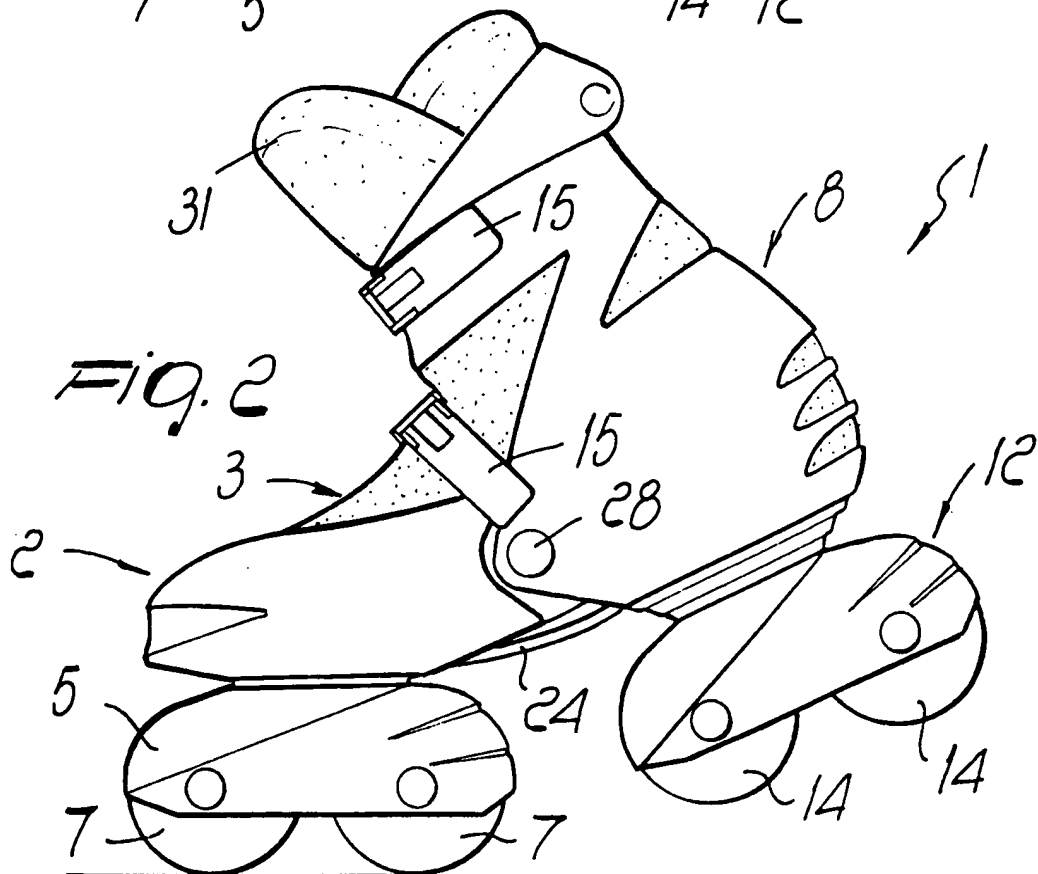
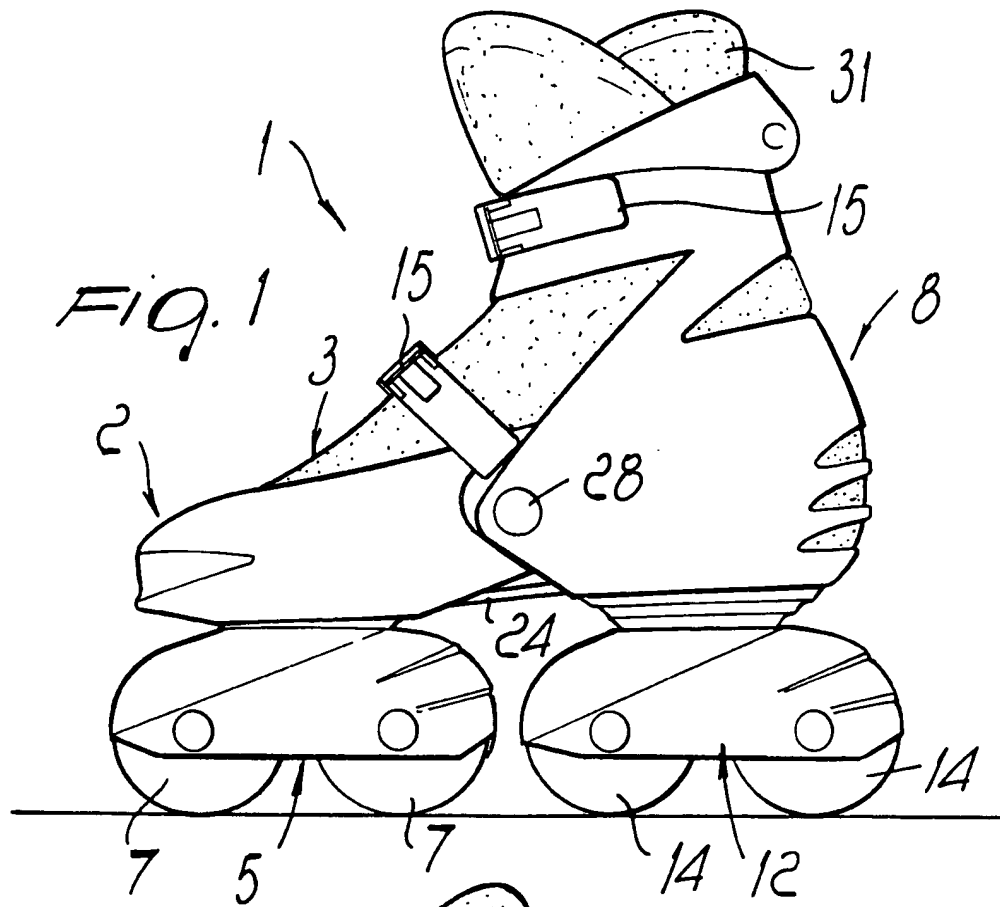
The materials and the dimensions that constitute the individual components of the structure may of course also be the most pertinent according to the specific requirements.

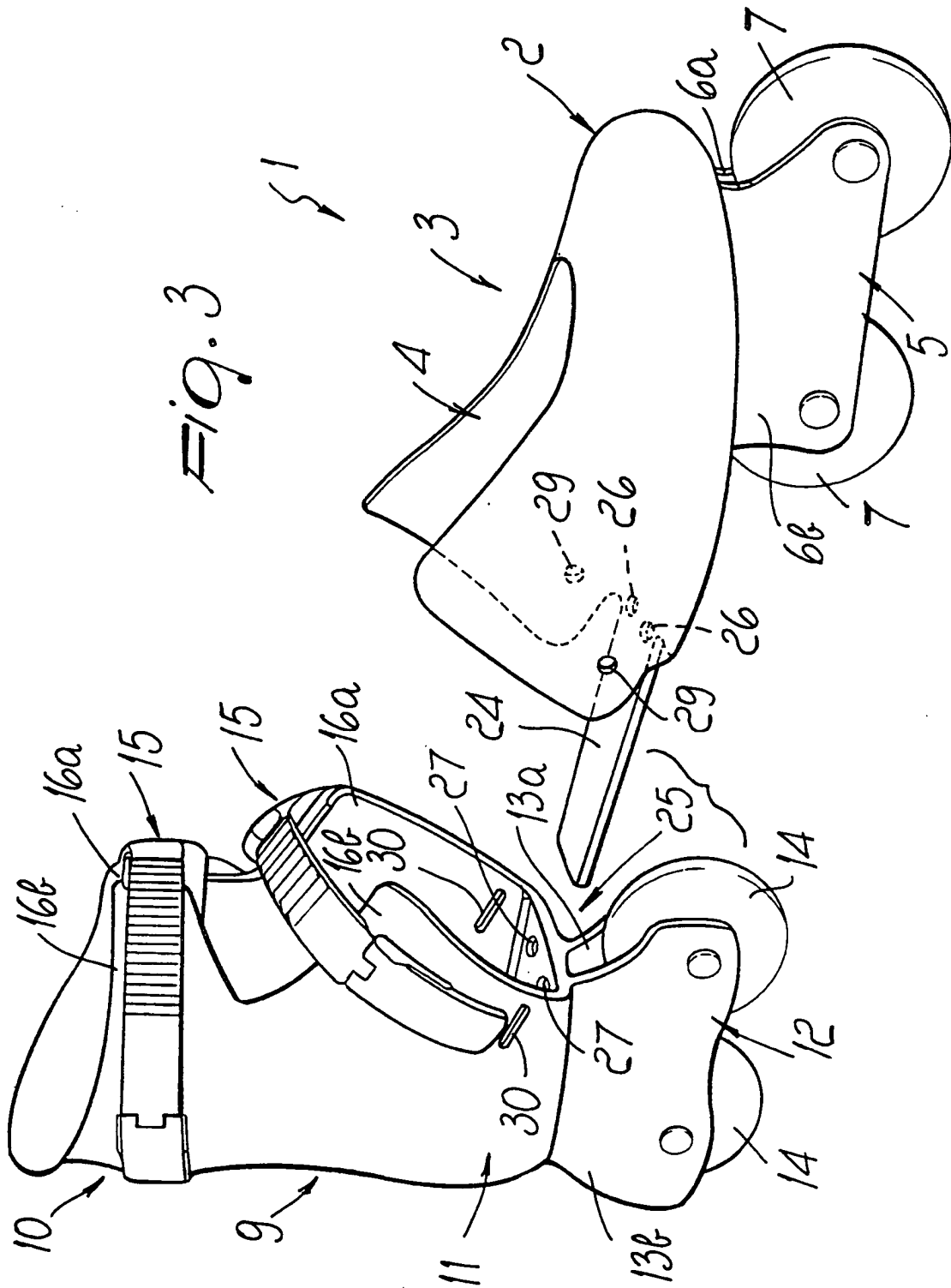
Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

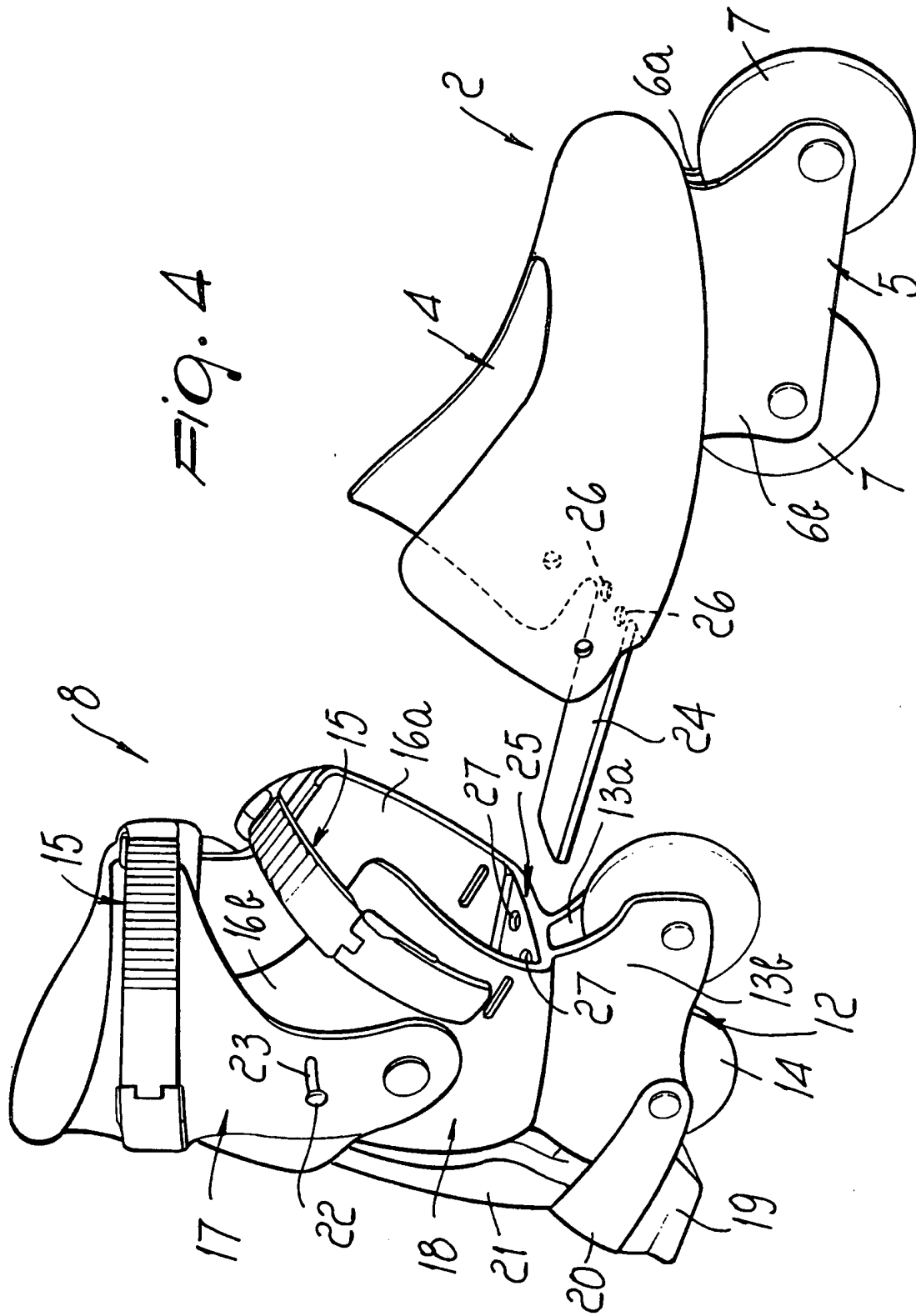
## Claims

1. Roller skate with improved fit, characterized in that it comprises a first front body (2) for supporting and securing the front part of the foot and a second rear body (8) for supporting and securing at least the heel, said front body being rotatably associated with said rear body (8).
2. Skate according to claim 1, characterized in that said first and second bodies temporarily accommodate an innerboot (31).
3. Skate according to claim 1, characterized in that said first front body (2) forms a shell that surrounds and secures the front region (3) of the foot, is open at the rear, and has an upper longitudinal opening (4).
4. Skate according to claim 1, characterized in that a substantially U-shaped first frame (5) is associated below said first body (2), two first mutually aligned wheels (7) being rotatably associated between the first wings (6a,6b) of said frame.
5. Skate according to claim 1, characterized in that said first front body (2) is slidingly associated with said second rear body (8).
6. Skate according to claim 1, characterized in that said second rear body (8) comprises a monolithic unit formed by a cuff (9) surrounding the tibial (10) and heel (11) regions.

7. Skate according to claim 1, characterized in that said second rear body (8) is open at the front, a second frame (12) being associated therewith below the heel region and having a U-shaped cross-section, second mutually aligned wheels (14) being rotatably associated between the second wings (13a,13b) of said frame. 5
8. Skate according to claim 1, characterized in that said second rear body is constituted by two elements: a quarter (17) articulated to a shell portion (18), to allow the articulation to said second frame of a support (19) for a brake (20) that interacts with the ground, said support being articulated to the rear and transversely with respect to said quarter by means of a rod member (21). 10 15
9. Skate according to one or more of the preceding claims, characterized in that said tibial (10) and heel (11) regions are secured by means of adapted levers (15) that transversely connect the flaps (16a,16b) of at least said second rear body (8). 20 25
10. Skate according to claim 8, characterized in that the oscillation of said quarter (17) with respect to said shell portion (18) is guided by an adapted first pivot (22) protruding laterally with respect to said shell portion and acting within an adapted first curved slot (23) that is formed laterally with respect to said quarter. 30
11. Skate according to claim 5, characterized in that the sliding connection between said first and second bodies occurs by means of an adapted tab (24) protruding to the rear and below said first body (2) along an axis that is approximately central and longitudinal, said tab (24) being slidingly arranged at an adapted seat (25) formed at the heel resting region in said second body (8). 35 40
12. Skate according to claim 11, characterized in that the mutual position of said first and second bodies is locked by means of adapted screws or rivets that affect a first pair of holes (26) formed on said first body (2) proximate to said tab (24) and a second pair of holes (27) formed on said seat (25) of said second body (8). 45 50
13. Skate according to one or more of the preceding claims, characterized in that said first and second bodies are mutually transversely and rotatably associated by means of an adapted pair of studs (28), the stem whereof affects a third pair of holes (29) formed laterally and proximate to the open rear end of said first body, as well as a pair of second slots (30) formed laterally to said second body proximate to said seat (25) formed thereon. 55
14. Skate according to one or more of the preceding claims, characterized in that said first (2) and second (8) bodies are mutually transversely and rotatably associated by means of an adapted pair of studs (28), the stem whereof affects a third pair of holes (29) formed laterally and proximate to the open rear end of said first body, as well as a fourth pair of holes formed laterally to said second body proximate to said seat formed thereon.







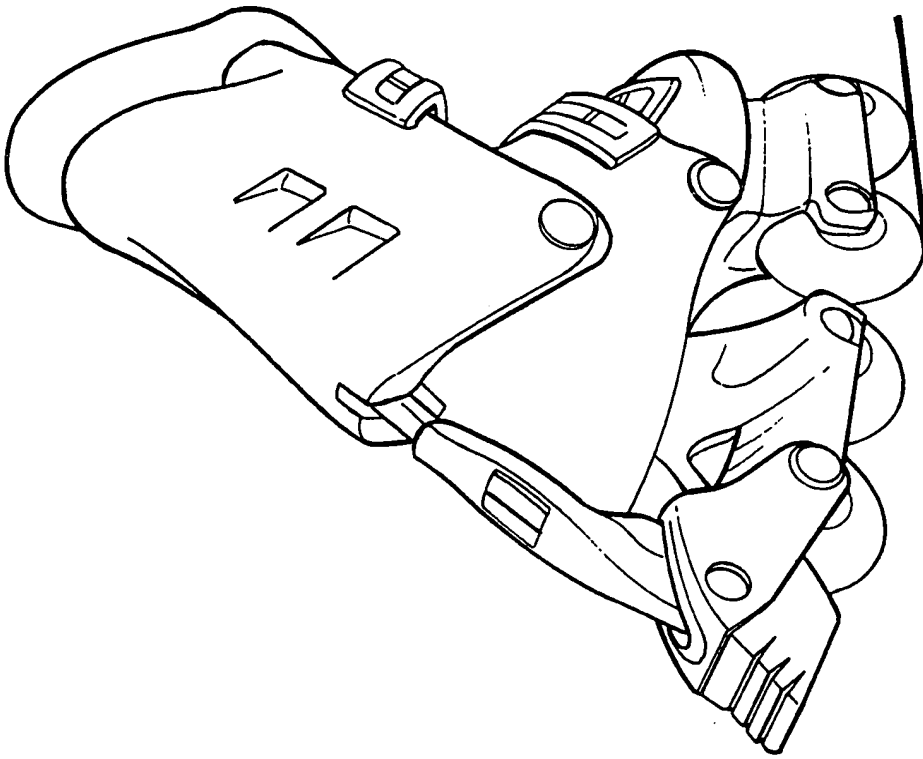


Fig. 6

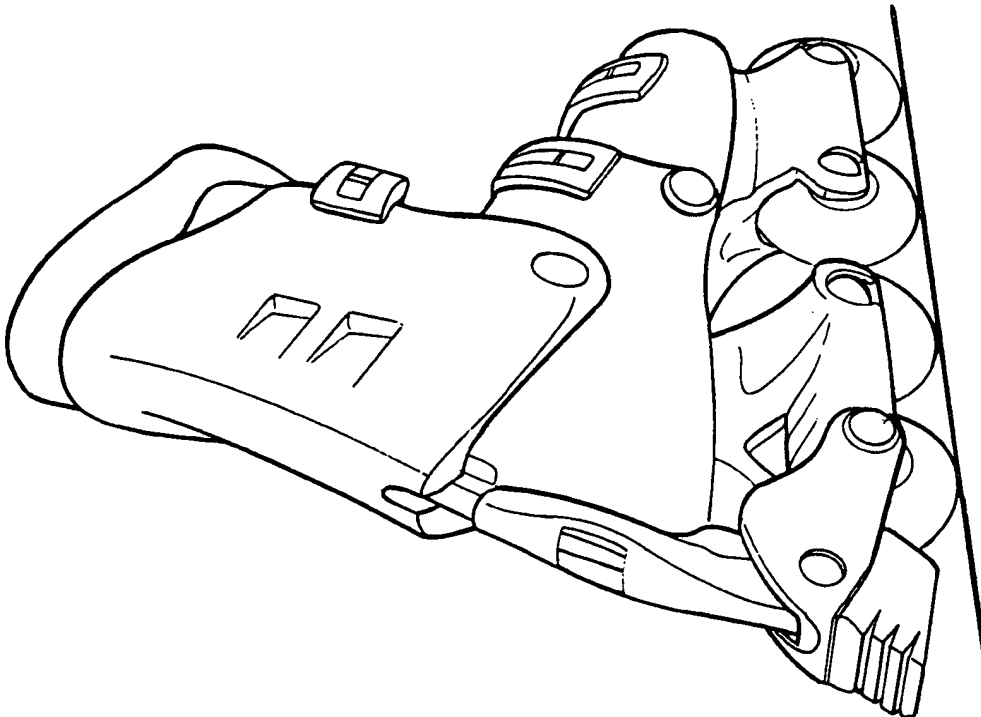


Fig. 5